

ABSTRACT

SELECTIVE HEMISPHERICAL SILICON GRAIN (HSG) CONVERSION INHIBITOR FOR USE DURING THE MANUFACTURE OF A SEMICONDUCTOR DEVICE

A method used to form a semiconductor device comprises forming a layer such as a container capacitor layer having a bottom plate layer. The bottom plate layer is formed to define a receptacle, and a rim which defines an opening to an interior of the receptacle. The bottom plate layer is formed to have a smooth texture. Subsequently, an inhibitor layer is formed on the rim of the bottom plate layer while a majority of the receptacle defined by the bottom plate layer remains free from the inhibitor. With the inhibitor layer on the rim of the bottom plate layer, at least a portion of the receptacle is converted to have a rough texture, such as to hemispherical silicon grain (HSG) polysilicon, while subsequent to the conversion the smooth texture of the rim which defines the opening to the interior of the receptacle remains. A resulting structure is also described.